The Northern Israel Oncology Center

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The Institute of Oncology and Nuclear Medicine at the Rambam Medical Center, Haifa, was established in 1968. The staff at the time of the opening consisted of three physicians, one physicist, one biologist, nurses, technicians and nonprofessionals, 15 employees in all. The inventory of the equipment for radiotherapy and nuclear medicine included a cobalt set, an orthovoltage radiation machine, radium sources, a rectilinear scanner, single and dual uptake units and beta and gamma counters. A laboratory service, performing routine blood counts, and an oncological research unit were also installed.

It soon became evident that the services of the Institute would have to be extended beyond the Rambam Medical Center and as result of this the Northern Israel Oncology Center was founded. The Center is supported by the Ministry of Health and Labor Union Sick Foundation and serves a population of about 1 million. Members of the Center conduct tumor boards or oncological consultations at all six general hospitals in northern Israel, once a month or every other week, depending on the size of the hospital.

As the number of patients increased each year (in 1968 there were 440 new patients; 1,544 in 1977 and 2,266 in 1978), further equipment, including a 10 MeV linear accelerator, a treatment simulator and two gamma cameras, was obtained with the help of the Ministry of Health and the Israel Cancer Society. The number of working personnel increased in 10 years to over 100, including 17 physicians, 5 physicists, computer programmers, nurses, technicians, etc.

The center is a comprehensive cancer center and provides radiotherapy, chemotherapy and immunotherapy as well as consultations for suspected cancer, early diagnosis and follow-up of cancer patients (at

the end of 1968 there were 686 visits of outpatients; in 1972 there were 870; in 1975 there were 10,212 and in 1978 there were 20,840). Once a week joint consulting clinics take place with each of the following specialties: surgery, gynecology, ENT, chest surgery. Meetings with other departments take place when the need arises. The results of diagnostic X-rays, nuclear medicine scans and pathology are discussed once a week.

The center is part of the Technion Medical School in Haifa. Courses and lectures are given to medical students, nurses, X-ray technicians, general practitioners and residents. The teaching is disease oriented, meaning that the natural history of the disease is taught together with all the nonsurgical oncological aspects. The training program in oncology for doctors includes 1 year in medicine, 2 years in medical oncology, 2 years in radiation oncology and 6 months in one of the

research laboratories. The State Board examinations for specialists in oncology include medical and radiation oncology.

The Center comprises the following units:

Radiotherapy. This unit consists of a 10 MeV linear accelerator, three cobalt sets, orthovoltage machines and brachytherapy sources. There are 34 beds for hospitalization of radiotherapy patients. About 120 patients are treated each day.

Chemotherapy. 38 hospital beds are available for chemotherapy patients. A hospice with 15 beds for hospitalization of chronic patients is also available in Haifa. In addition 50 treatments are given daily in a day-care unit.

Laboratory. Hematological tests, immune investigations and immunotherapy are conducted at the labora-

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Fig. 1.

Fig. 2.

tory of the Center which is independent of the main hospital laboratories. About 70 tests are performed daily.

Nuclear Medicine. All patients requiring diagnostic tests which involve radioactive nuclides are referred to this unit. The tests performed include uptake measurements, scintigraphy and in vitro studies. Interpretations of results are conducted weekly with clinicians from various departments.

Medical Physics. Calibrations, dosimetry measurements and quality control are the responsibility of this unit. Development of instruments and methods for diagnostic and treatment procedures, including com-

puter applications, are also performed. A computer system, acquired with the aid of research grants from the US-Israel Binational Science Foundation and the International Atomic Energy Agency, is used for radiotherapy planning, patient appointment scheduling, statistical evaluation and clinical trials and research.

Social Care. With cancer patients it is insufficient to treat the disease without considering the psychological state of the patient in relation to family, friends and coworkers. Accordingly, a social care unit was set up in 1977, comprising a social worker, a psychologist and a district nurse. This unit helps patients and their families to cope with personal and financial problems which may arise from the patients' illness.

Administrative Services. The flow of patients and their records are taken care of by a staff of secretaries, medical transcribers and receptionists. Patient information is categorized and recorded in files.

Current research interests of the staff members include: the use of methanol extraction residue of BCG in cancer treatment, immune investigations in cancer patients, development of nuclear medicine methods to improve cancer diagnosis, and application of computed tomography in radiotherapy. Cooperative projects with other departments of the Medical School and other faculties in the Technion are in progress. The Center takes part in national trials of breast cancer treatments and in addition conducts its own trials. 20 research grants from Israel and abroad were granted to members of the Center during the last 10 years.

More than 150 papers have been published in international and national medical journals during that period and members of the Center have presented contributions at 36 international meetings.

Academic appointments at the Technion include one full professor, one associate professor, one senior lecturer and two adjuncts. The director is an established investigator of the Chief Scientists' Bureau of the Ministry of Health. 26 doctoral dissertations and two MSc theses have been completed under the supervision of members of the staff.

Future Goals

Our future plans include consolidation of past achievements together with an effort to constantly improve our diagnostic and treatment services. To achieve these goals our immediate aims include the application

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of computers in nuclear medicine studies and the development of new radiopharmaceuticals for tumor diagnosis and therapy. Radiotherapy planning will be more sophisticated through the use of the computerized tomography for tumor localization and treatment planning. Further randomized national clinical trials combining all effective treatments in adjuvant or therapeutic modes will be encouraged. Computer programs for tumor registry and treatment evaluation are being developed. In collaboration with medical practitioners we are striving to provide better home care for cancer

patients and to promote measures in the community leading to early detection and prevention of malignant disease.